

IN THE CLAIMS

1.-4 (Cancelled)

5. (Previously Amended) A method for removing heavy metals or radionuclides from a volatilized gas comprising contacting said volatilized gas with an ion exchange material selected from a solid ion exchange material, a liquid ion exchange material, or mixtures thereof, wherein said ion exchange material is prepared by the process comprising:

- (a) contacting clinoptilolite with an alkaline solution at a temperature of about 85°C to about 300°C and for a sufficient time to form a treated slurry comprising a solid fraction and a liquid fraction, and optionally
- (b) separating the solid fraction from said treated slurry and washing the solid fraction to produce said solid ion exchange material; and
- (c) recovering the liquid fraction of said treated slurry from step (b) to produce said liquid ion exchange material;

wherein when a solid ion exchange material is used, said solid ion exchange material is the solid ion exchange material of step (b); when a liquid ion exchange material is used, said liquid ion exchange material is the liquid ion exchange material of step (c); and when a mixture of said solid ion exchange material and said liquid ion exchange material is used, said mixture can be said treated slurry produced in step (a) or said mixture can be prepared by mixing said solid ion exchange material of step (b) with said liquid ion exchange material of step (c);

wherein said ion exchange material is said liquid ion exchange material.

6. (Original) The method of claim 5 wherein said aqueous or gaseous solution is acidic.

7. (Original) The method of claim 6 wherein said liquid ion exchange material is contacted with an aqueous or gaseous solution containing heavy metals and radionuclides for a sufficient period of time to precipitate contaminants from solution,

and conducting a liquid/solid separation or gas/solid separation to remove the precipitated contaminants from the solution.

8. (Original) The method of claim 7 wherein the amount of said liquid ion exchange material contacted with said aqueous or gaseous solution is sufficient to produce an aqueous or gaseous solution having a pH after contacting with said liquid ion exchange material and removing said precipitated contaminants of about 6 to about 9.

9. (Previously Amended) A method for removing heavy metals or radionuclides from a volatilized gas comprising contacting said volatilized gas with an ion exchange material selected from a solid ion exchange material, a liquid ion exchange material, or mixtures thereof, wherein said ion exchange material is prepared by the process comprising:

- (a) contacting clinoptilolite with an alkaline solution at a temperature of about 85°C to about 300°C and for a sufficient time to form a treated slurry comprising a solid fraction and a liquid fraction, and optionally
- (b) separating the solid fraction from said treated slurry and washing the solid fraction to produce said solid ion exchange material; and
- (c) recovering the liquid fraction of said treated slurry from step (b) to produce said liquid ion exchange material;

wherein when a solid ion exchange material is used, said solid ion exchange material is the solid ion exchange material of step (b); when a liquid ion exchange material is used, said liquid ion exchange material is the liquid ion exchange material of step (c); and when a mixture of said solid ion exchange material and said liquid ion exchange material is used, said mixture can be said treated slurry produced in step (a) or said mixture can be prepared by mixing said solid ion exchange material of step (b) with said liquid ion exchange material of step (c);

wherein said ion exchange material is a mixture of said solid ion exchange material and said liquid ion exchange material.

10.-60 (Cancelled)

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